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FAY SHARPE LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			EXAMINER PIZIALI, JEFFREY J	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/701,051	<b>Applicant(s)</b> CHENG, CHUN-FAI	
	<b>Examiner</b> Jeff Piziali	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2008 & 23 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7 November 2007</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species 1 (i.e., claims 1-7 and 9-12) in the reply filed on 27 November 2006 is acknowledged.
2. Claim 8 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 27 November 2006.

### ***Drawings***

3. The drawings were received on 23 August 2007. These drawings are acceptable.
4. The drawings are objected to because: Figure 6 describes the connection between the integrator circuit and the ramp as "***Double-inverted-S ramp voltage output (to...***" -- where the descriptive text here appears to abruptly cut off in mid-sentence.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

Art Unit: 2629

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: at least **"R1-R4, R7, R8, R11-R14, R17-R31, Q1-Q15, D1-D4, V1, V2, Vs, C1, C2"** (see Fig. 7).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2629

6. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the figures.

### ***Specification***

7. The disclosure is objected to because of the following informalities:

The term "*equation 1*" should be corrected, for example to, "*Equation 1*" (see Page 6, Line 14 of the Clean Substitute Specification filed 23 August 2007).

Appropriate correction is required.

8. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites, a "**ramping voltage, between its start and peak, conforms to a curve having an inverted s-shape, with an initial convex portion followed by a concave portion**" (in line 9).

However, the invention as instantly disclosed is concerned with generating "**the double-inverted-S ramp of FIG. 4**" (see Page 9, Line 12 of the Clean Substitute Specification filed 23 August 2007).

One having ordinary skill in the art would recognize a "**double-inverted-S ramp**" not as taking an "**inverted-s shape**" (as claimed), but instead as taking a "**s shape**". An "s" inverted once, obviously would take an "**inverted-s shape**". However, an "s" inverted twice, would go back to taking an "**s shape**".

Additionally, it's unlikely one having ordinary skill in the art would look at Figure 4's two illustrated ramp curves and consider either of those ramps as having "**an inverted s-shape**" (as instantly claimed). Both ramp curves in Figure 4 differ in significant ways from one another in shape. Neither ramp curve resembles an "**inverted-s shape**" or even an "**s shape**" for that matter.

Ironically, prior art Figure 3 appears to more closely approximate an "**s shape**".

Moreover, claim 1 also recites a "**non-linear voltage ramp generator**" (see line 6). However, again, Figure 4's two illustrated ramp curves are both illustrated as having significant linear features (especially the illustrated "ramp curve for positive row").

The claims contain "**inverted-s shaped voltage ramp**" and "**non-linear voltage ramp generator**" subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

11. The remaining claims are rejected under 35 U.S.C. 112, first paragraph, as being dependent upon a rejected base claim.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. The term "***thick dielectric electroluminescent display***" in claim 1 (in line 1) is a relative term which renders the claim indefinite. The term "***thick***" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art precisely what distance measurement must exist before the dielectric layers would be considered "***thick***," as opposed to "***thin***."

15. Claim 1 recites the limitation "***gray level data***" (in line 4). The lack of a grammatical article (such as "***a***" or "***a plurality of***" or "***the***" or "***said***") preceding the limitation renders it unclear whether the claim is establishing a new element; or instead referring back to some preestablished limitation. For example, it would be unclear to an artisan whether a single element of "***data***" is being claimed; or rather whether a plurality of "***data***" elements are being claimed.

16. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***an incoming video signal***" (in line 4). It would be unclear to one having ordinary skill in the art what the "***video signal***" is "***coming into***". Is the video signal "***coming into***" the counter? Or "***coming into***" the display? Or "***coming into***" the driver?

An omitted structural cooperative relationship results from the claimed subject matter: "***in response counting***" (in line 5). It would be unclear to one having ordinary skill in the art what the counting is "***in response***" to. "***In response***" to the video signal? Or the gray level data?

An omitted structural cooperative relationship results from the claimed subject matter: "***its***" (in line 9). It would be unclear to one having ordinary skill in the art what "***its***" is intended to refer to. The voltage? The time interval? The columns? Etc.

An omitted structural cooperative relationship results from the claimed subject matter: "***conforms to a curve having an inverted s-shape***" (in lines 9-10). It would be unclear to one having ordinary skill in the art what such a conforming shape looks like. Is the "***s***" upside down? Or backwards? Or is the "***s***" rotated horizontally? The curves of the letter "***s***" are both simultaneously convex and concave -- it's all a matter of perspective.



Art Unit: 2629

17. Claim 1 recites the limitations "*its start and peak*" (in line 9) and "*luminance versus voltage characteristics*" (in line 11). There is insufficient antecedent basis for these limitations in the claim.

18. The term "*compensate*" in claim 1 (in line 11) is a relative term which renders the claim indefinite. The term "*compensate*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art the difference between "*compensating*" and "*making worse, or more imbalanced.*" This is a subjective term dependent upon undefined design goals and intensions.

19. The term "*conforms generally*" in claim 2 (in lines 3-4) is a relative term which renders the claim indefinite. The term "*generally*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art precisely to what degree the convex and concave portions must conform to negative and positive second derivatives respectively before they would be considered "*generally*" in conformance.

20. The term "*fully define 256 gray levels*" in claim 3 (in line 3) is a relative term which renders the claim indefinite. The term "*fully define*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of

Art Unit: 2629

ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what's the difference between "*defining 256 gray levels*" and "*fully defining 256 gray levels*".

21. Claim 4 recites the limitations "*a negative row voltage*" (in line 2) and "*a positive row voltage*" (in line 5). There is insufficient antecedent basis for these limitations in the claim. There's no antecedent basis a "*row*" of any kind.

22. The variable "*t*" in claim 4 (in lines 2 and 5) is a relative term which renders the claim indefinite. The variable "*t*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what the variable "*t*" is intended to represent.

23. Claim 4 recites the limitations "*the time  $t_m$* " (in line 3) and "*the end of said time interval*" (in line 4). There is insufficient antecedent basis for these limitations in the claim.

24. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*converted to complement values*" (in line 6). It would be unclear to one having ordinary skill in

Art Unit: 2629

the art what the values are intended to complement. The gray level data is nowhere recited as taking one more values. As explained earlier, it's not even certain whether the gray level data is singular or plural. Is the complement value of gray level data black-&white data? Or color data?

25. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***a first segment***" (in line 5); "***a second segment***" (in line 7); and "***a final segment***" (in line 8). It would be unclear to one having ordinary skill in the art what the relationship is between these "***segments***" and the earlier claimed "***convex and concave portions***." Are the portions identical to the segments? Or are the portions and segments different and distinct from each other?

26. Claim 5 recites the limitation "***the second one of said current sources***" in line 7. There is insufficient antecedent basis for this limitation in the claim.

27. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***a current***" (in line 2) and "***a current***" (in line 4). It would be unclear to one having ordinary skill in the art whether these are identical or distinct currents relative to each other. Furthermore, it

Art Unit: 2629

would be unclear to one having ordinary skill in the art whether these currents are identical to or distinct from the "currents" recited earlier in claim 5, line 4.

28. Claim 9 recites the limitation "***said two current sources***" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites "***at least two current sources***" (in line 3). Does claim 9 refer to any two of those "***at least two current sources***"; or rather does claim 9 refer to the "***first one of said current sources***" and "***the second one of said current sources***"?

29. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***a positive row voltage***" (in line 4) and "***a negative row voltage***" (in line 4). It would be unclear to one having ordinary skill in the art whether these voltages are identical to the positive and negative row voltages earlier claimed in claim 4 (in lines 2 and 5); or rather are these voltages are distinct and different from the positive and negative row voltages earlier claimed in claim 4 (in lines 2 and 5).

30. Claim 11 recites the limitation "***curvature***" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 2629

31. The term "***more pronounced***" in claims 13-15 (in lines 2 and 3) is a relative term which renders the claim indefinite. The term "***more pronounced***" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what precise, measurable, and definable properties distinguish a "***more pronounced***" portion of a ramping voltage from a "***less pronounced***" portion of a ramping voltage. Is the duration longer or shorter? Is the amplitude higher or lower?

32. Claims 13-15 recites the limitations "***positive row voltages***" (in line 2) and "***negative row voltages***" (in line 3). There is insufficient antecedent basis for these limitations in the claim. There's no antecedent basis a "***row***," never mind "***row voltages***."

33. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***positive row voltages***" (in line 2); "***negative row voltages***" (in line 3); "***positive row voltages***" (in line 4); and "***negative row voltages***" (in line 4). It would be unclear to one having ordinary skill in the art whether each claim is referring to the same identical "***positive/negative row voltages***" throughout; or rather whether there are distinct and different sets of "***positive/negative row voltages***" being claimed.

34. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 103***

35. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

36. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Yeo (US 6,049,320 A)*** in view of ***Maurice (US 6,844,874 B2)***.

Regarding claim 1, ***Yeo*** discloses a gray scale column driver [e.g., Fig. 1] for a liquid crystal display, comprising:

a counter [e.g., Fig. 1; 2] receiving gray level data from an incoming video signal [e.g., Fig. 1; digital data incoming from register 1] and in response counting for a time interval proportional to said gray level data [e.g., Fig. 2B; producing pulse width modulated output]; and

a non linear voltage ramp generator [e.g., Fig. 1; ramp signal A] connected to said counter,

said non linear voltage ramp generator outputting a ramping voltage [e.g., Fig. 2A] for application to columns [e.g., Fig. 1; C] of said display during said time interval,

wherein said ramping voltage, between its start and peak, conforms to a curve having an inverted s-shape, with an initial convex portion followed by a concave portion so as to compensate for luminance versus voltage characteristics of said display (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

**Yeo's** display is a liquid crystal display (arguably even a "thick LCD"), not a "*thick dielectric electroluminescent display*," as instantly claimed.

However, **Maurice** discloses a non linear voltage ramp generator outputting a ramping voltage [e.g., Fig. 3; Data Ramp/Line L'i] for application to columns [e.g., Figs. 2, 4; Data Ramp/Line L'i] of either a liquid crystal display [e.g., Fig. 2] or a thick dielectric electroluminescent display [e.g., Fig. 4] (see the entire document, including Column 5, Lines 24-29).

**Yeo** and **Maurice** are analogous art, because they are from the shared inventive field of voltage ramp generators for display devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use **Yeo** discloses a gray scale column driver with a thick dielectric electroluminescent display such as the one taught by **Maurice**, so as to provide conventional data driver for use with a commercially popular, alternate display type.

Regarding claim 2, **Yeo** discloses said initial convex portion conforms to a negative second derivative with respect to said time interval, and said concave portion conforms generally to a positive second derivative with respect to said time interval (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 3, **Yeo** discloses said counter is a 6-bit counter.

However, the examiner takes official notice that it would have been within the skill of the average artisan to replace a 6-bit counter with an 8-bit counter, so as to delineate said time interval to define more display gradations, improving the quality of the displayed image, and enhancing compatibility with higher resolution input image data.

Regarding claim 4, **Yeo** discloses said ramping voltage for a negative row voltage is  $V_{g\text{ neg}}(t_m - t)$  expressed as a function of the difference between the time  $t_m$  for the ramping voltage to reach a maximum luminance voltage value  $V_m$  at the end of said time interval, and wherein said ramping voltage for a positive row voltage is  $V_{g\text{ pos.}}(t)$ , where  $V_{g\text{ pos.}}(t) = V_m - V_{g\text{ neg}}(t_m - t)$  and said gray level data is converted to complement values (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 5, **Yeo** discloses said non linear voltage ramp generator further comprises an integrator circuit [e.g., Fig. 1; electrode A input to transistors 3 through column C] and at least two current sources [e.g., Fig. 1; three transistors 3] generating and applying different currents to said integrator circuit such that when a first one of said current sources [e.g., Fig. 1; first transistor 3] is connected to said integrator circuit a first segment of said ramping voltage is generated, when both of said current sources [e.g., Fig. 1; first and second transistors 3] are connected in parallel to said integrator circuit a second segment of said ramping voltage is generated, and when the second one of said current sources [e.g., Fig. 1; second transistor 3] is



Art Unit: 2629

connected to said integrator circuit a final segment of said ramping voltage is generated (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 6, *Yeo* discloses said first one of said current sources generates a current that decreases during said time interval [e.g., going from the peak to the end], and said second one of said current sources generates a current that increases during said time interval [e.g., going from the start to the peak] (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 7, *Yeo* discloses said at least two current sources are time-dependent voltage feedback controlled current sources [e.g., Fig. 1; controlled by counters 2] (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 9, *Yeo* discloses said non linear voltage ramp generator further comprises a threshold control circuit for controlled switching [e.g., Fig. 1; 3] between said two current sources (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 10, *Yeo* discloses said non linear voltage ramp generator further comprises a frame polarity control circuit selecting between said ramping voltage for a positive row voltage [e.g., Fig. 2A; first ramp] and said ramping voltage for a negative row voltage [e.g., Fig. 2A; second ramp] (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 11, *Yeo* discloses said current sources further include control inputs controlling curvature of said first and second segments respectively (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 12, *Yeo* discloses said threshold control circuit further includes a control input setting a transition voltage between said first and second segments of said ramping voltage (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 13, *Yeo* discloses the initial convex portion of the ramping voltage is more pronounced for positive row voltages as compared to negative row voltages and wherein the concave portion of the ramping voltage is more pronounced for negative row voltages as compared to positive row voltages (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 14, *Yeo* discloses the initial convex portion of the ramping voltage is more pronounced for positive row voltages as compared to negative row voltages and wherein the concave portion of the ramping voltage is more pronounced for negative row voltages as compared to positive row voltages (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

Regarding claim 15, *Yeo* discloses the initial convex portion of the ramping voltage is more pronounced for positive row voltages as compared to negative row voltages and wherein the concave portion of the ramping voltage is more pronounced for negative row voltages as compared to positive row voltages (see the entire document, including Figs. 2A & 2B; Column 1, Lines 5-64).

### ***Response to Arguments***

37. Applicant's arguments filed 23 August 2007 have been fully considered but they are not persuasive.

The Applicant contends, "*The Examiner has rejected claims 1 to 7 and 9 to 12 under 35 U.S.C. §112, second paragraph. The Examiner is alleging that use of the term 'thick' in claim 1 and the use of the phrase 'conforms generally' in claim 2 renders these claims indefinite. With respect to the Examiner's objection for use of the term 'thick', Applicant respectfully submits that the Examiner's objection is inappropriate. U.S. Patent Application No. 09/504,472 (now U.S. Patent No. 6,448,950) incorporated by reference in the subject application provides the standard for ascertaining the requisite degree to enable one of ordinary skill in the art to be reasonably apprised of the scope of the claimed invention. Further, at least column 6, lines 27-54, clearly shows the meaning of this term in the present technology is understood by one of ordinary skill in the art"* (see Page 8, Paragraph 6 of the Remarks filed 23 August 2007). However, the examiner respectfully disagrees.

In the section referenced by the Applicant, U.S. Patent No. 6,448,950 states, "*Returning momentarily to FIG. 2, the preferred embodiment for the present invention is optimized for use with an electroluminescent display having a **thick film dielectric layer**. **Thick film electroluminescent displays** differ from conventional **thin film electroluminescent displays** in that one of the two dielectric layers comprises a **thick film layer** having a **high dielectric constant**. The second dielectric layer is not required to withstand a dielectric breakdown since the **thick layer** provides this function, and can be made **substantially thinner** than the dielectric layers employed in **thin film electroluminescent displays**. U.S. Pat. No. 5,432,015 teaches methods to construct **thick film dielectric layers** for these displays. As a result of the nature of the dielectric layers in **thick film electroluminescent displays**, the values in the equivalent circuit shown in FIG. 3 are **substantially different** than those for **thin film electroluminescent displays**. In particular, the values for  $C_d$  can be **significantly larger** than they are for **thin film electroluminescent displays**. This makes the **variation** in panel capacitance as **a function** of the applied row and column voltages **greater** than it is for **thin film displays**, and provides a **greater impetus** for the use of the present invention in **thick film displays**. The ratio of the pixel capacitance above the threshold voltage to that below the threshold voltage is **typically about 4:1 but can exceed 10:1**. By contrast, for **thin film electroluminescent displays** this ratio is **in the range of about 2:1 to 3:1**. **Typically** the panel capacitance **can range** from **the nanofarad range to the microfarad range**, depending on the size of the display and the voltages applied to the rows and columns"* (see Column 6, Lines 27-54 of U.S. Patent No. 6,448,950 -- emphasis added by the examiner).

The above section of U.S. Patent No. 6,448,950 nowhere provides a reasonable, definable, measurable standard for what constitutes a "*thick dielectric electroluminescent display*."

All the properties linked above (and underlined by the examiner) to "*thick film electroluminescent displays*" are vague and indefinite in their own right.

Even the ratios provided are vague, wholly subjective, and indefinite. For example, if a "*thick film*" has a ratio of "typically about 4:1" and a "*thin film*" has a ratio "in the range of about 2:1 to 3:1"; does then a "*3.5:1 ratio*" signify a "*thick film*" or a "*thin film*"? There's no reasonable way for an artisan to know definitively.

Furthermore, U.S. Patent No. 6,448,950 nowhere even uses the term, "*thick dielectric electroluminescent display*" as instantly claimed.

With all due respect, the term "*thick dielectric electroluminescent display*" is not defined by the instant claims. Neither the instant specification, nor U.S. Patent No. 6,448,950 provides a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Applicant's arguments with respect to claims 1-7 and 9-12 have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

***Conclusion***

38. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The documents listed on the attached '*Notice of References Cited*' are cited to further evidence the state of the art pertaining to gray scale column drivers.

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2629

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/  
Primary Examiner, Art Unit 2629  
30 May 2008